

# **Summary of the Breed-Specific Breeding Program (JTO)**

## **Saluki**

### **2014-2018**

Finnish Saluki Club

<http://www.saluki.fi/>

Saluki is an ancient breed originated from the Middle-East. The breed has developed during thousands of years to hunt various game in different terrain. The diversity in the surroundings and hunted game has resulted in different types of salukis: there is great variation in the appearance of a saluki. Function, hunting, has guided saluki to its perfection; the saluki has always been the same. Therefore the main goal in breeding is to **preserve**, not to improve or change the breed.

The western breeding of saluki began at the end of the 19<sup>th</sup> century in the UK. The first breed standard was written in 1923. In Finland breeding began in 1949 with an english import Mazuri Zahilat. Number of registrations has steadily risen, although there is annual variation. During years 2010-2015 the registrations varied between 87 and 121.

Saluki is a breed with a small population. Most western bred salukis descend from 40-45 early imports. Several bottlenecks, inbreeding and popular sires have narrowed the gene pool. However, use of imports and foreign studs has increased and dogs from countries of origin are still available, which has a positive effect in the inbreeding coefficient and diversity.

Saluki is a normally structured, healthy breed. The most common health problems are allergies and skin problems, tumors, heart diseases and autoimmune diseases. Reported temperament related problems are shyness, separation anxiety and aggression towards other dogs, also housebreaking problems were reported. Hunting with a saluki is not allowed in Finland, and thus the saluki is regarded as a companion dog.

#### **1. Population structure and gene pool**

The estimated saluki population in Finland is about 1000 dogs. Saluki is a small breed, it is vital to maintain the diversity and adequate size of the gene pool.

Saluki does not have any PEVISA-requirements (PEVISA= Health program for canine genetic diseases and defects) for registration, however the Finnish Saluki Club has recommendations for salukis used for breeding.

Recommendations regarding the gene pool:

- maximum inbreeding coefficient of a litter is 6,25% (calculated from 5 generations)
- maximum offspring recommended (5% of registrations during 5 years period), is 24 for a sire and 3 litters for a dam

Table 1. Annual statistics of Saluki registrations (Finnish Kennel Club breeding database)

<http://jalostus.kennelliitto.fi/frmJalostustilastot.aspx?R=269&Lang=en>

**Annual statistics - registrations**

	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Offspring (domestic)	85	94	62	102	69	73	69	63	118	68
Imports	8	11	15	15	16	14	10	19	19	12
Registrations altogether	93	105	77	117	85	87	79	82	137	80
Litters	12	15	11	17	12	13	13	10	20	14
Size of litter	7,1	6,3	5,6	6,0	5,8	5,6	5,3	6,3	5,9	4,9
Breeders	11	14	10	13	11	11	11	9	17	10
different sires used for breeding										
- all	12	14	11	15	12	13	11	9	19	13
- domestic	4	2	7	4	6	5	3	4	6	8
- imports	6	8	1	4	2	4	5	2	6	1
- foreign	2	4	3	7	4	4	3	3	7	4
- average breeding age	6 year 4 months	5 year 1 months	6 year	5 year 6 months	4 year 3 months	4 year 9 months	4 year 6 months	4 year 9 months	4 year 7 months	3 year 8 months
different dams used for breeding										
- all	12	15	11	17	12	13	13	10	20	14
- domestic	10	13	10	12	9	8	8	9	18	11
- imports	2	2	1	5	3	5	5	1	2	3
- average breeding age	5 year 1 months	5 year 1 months	4 year 11 months	4 year 9 months	4 year 11 months	5 year 6 months	4 year 8 months	4 year 5 months	5 year 6 months	5 year 8 months
Grand sires	22	25	18	27	23	23	20	16	34	24
Grand dams	23	26	17	32	23	24	20	16	34	24
Inbreeding	1,68%	0,45%	1,72%	1,04%	1,21%	1,62%	1,60%	2,04%	2,72%	4,37%

Table 2. Gene pool of Saluki per generation ( 4 years; Finnish Kennel Club breeding database)

<http://jalostus.kennelliitto.fi/frmJalostustilastot.aspx?R=269&Lang=en>

**Annual statistics - gene pool**

	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Per year										
- litters	12	15	11	17	12	13	13	10	20	14
- different sires used for breeding	12	14	11	15	12	13	11	9	19	13
- different dams used for breeding	12	15	11	17	12	13	13	10	20	14
- ratio of sires/dams	1,00	0,93	1,00	0,88	1,00	1,00	0,85	0,90	0,95	0,93
- effective population	16 (67%)	20 (67%)	15 (68%)	22 (65%)	16 (67%)	17 (65%)	16 (62%)	13 (65%)	26 (65%)	18 (64%)
- % of males used for breeding	0%	2%	3%	9%	14%	10%	11%	17%	18%	17%
- % of bitches used for breeding	2%	2%	0%	8%	12%	23%	25%	30%	24%	28%
Per generation (4 years)										
- litters	55	55	53	55	48	56	57	55	56	50
- different sires used for breeding	48	48	46	45	43	48	47	46	49	44
- different dams used for breeding	50	45	45	47	43	52	53	51	49	42
- ratio of sires/dams	0,96	1,07	1,02	0,96	1,00	0,92	0,89	0,90	1,00	1,05
- effective population	66 (60%)	61 (55%)	60 (57%)	62 (56%)	57 (59%)	67 (60%)	68 (60%)	66 (60%)	65 (58%)	57 (57%)
- % of males used for breeding	4%	7%	9%	12%	13%	15%	17%	17%	16%	14%
- % of bitches used for breeding	4%	6%	11%	16%	23%	25%	26%	26%	26%	27%

## **2. Temperament, behaviour and working abilities**

There is no such tradition to behavior tests within the breed compared to service dog breeds. During 2003-2013 45 salukis have taken the character test, most had rather typical results in different sections of the test. At dog shows practically every dog receives the mention 'allows handling'.

Hunting with a saluki is not allowed in Finland. Track racing and lure coursing are good stimulants to compensate the actual hunt and to gather information about the physical hunting skills and instinct. 10-15% of salukis acquire a racing license, whereas 35-50% of salukis get a lure coursing license.

According to the results of the health survey salukis have some temperament or behavior problems, such as shyness, separation anxiety or aggressive behavior towards other dogs. Also house breaking problems occur.

The temperament and behavior are of greatest importance when selecting dogs for breeding. Fears and anxieties have a high heritability.

General recommendation for breeding dogs:

- Shy or aggressive dogs are not allowed to be used for breeding.

## **3. Average lifespan**

In years 2010 and 2015 the Finnish Saluki Club conducted a health survey for salukis. In 2010 there were 688 answers, 50,8% of all salukis born during 1991-2008. In 2015 there were 730 answers, 51,4% from the basic population of 1996-2013. Number of replies from imports were 81 in 2010 and 108 in 2015.

Tables 3 and 4 confirm the same thing from different sources: average lifespan is over 9 years. When accidental deaths are excluded from the data, average lifespan rises to 10 years.

Table 3. Cause of death -statistics( Finnish Saluki Magazine 4/2015, Results of the Health Survey 2015; Kohtamäki & Eklund)

<b>Table 3. Cause of death</b>	<b>2010</b>		<b>2015</b>	
	<b>Average lifespan</b>	<b>Total</b>	<b>Average lifespan</b>	<b>Total</b>
<b>Cause of death:</b>				
<b>Respiratory disease</b>	5	4	8,6	6
<b>Neurological disorder</b>	6	4	6,2	3
<b>Pyoderma, skin infection</b>	7,1	1	4,7	2
<b>IMHA, AIHA</b>	4,2	8	4,3	5
<b>Immunological disease</b>	3,9	6	9,5	1
<b>Trombosytopenia</b>	7,7	4	6,7	7
<b>Immunological polyarthriasis</b>		-	7,6	1
<b>Tumors, skin</b>	9,75	2		-
<b>Lymfoma</b>	6	6	7,3	7

<b>Endocrine diseases</b>	10,4	8	<b>10,7</b>	<b>8</b>
<b>Tumors, other</b>	9,7	19	<b>10,9</b>	<b>27</b>
<b>Hemangiosarcoma</b>	10	2	<b>9,9</b>	<b>14</b>
<b>Tumors, mammal gland</b>	12,4	6	<b>13,4</b>	<b>3</b>
<b>Euthanasia, non-diagnosed</b>	4,5	1	<b>7,4</b>	<b>7</b>
<b>Euthanasia due to behavioral problems</b>	7,9	2	<b>6,3</b>	<b>7</b>
<b>Jecur or digestive disease</b>	5	4	<b>4,1</b>	<b>3</b>
<b>Congenital defect or malformation of a puppy</b>	0,2	2	<b>0,1</b>	<b>1</b>
<b>Heart disease</b>	10,2	21	<b>9,3</b>	<b>16</b>
<b>Heart muscle disease, cardiomyopathy</b>	10	6	<b>9,2</b>	<b>8</b>
<b>Accident</b>	3	14	<b>3,5</b>	<b>19</b>
<b>Age (natural or euthanasia)</b>	13,2	42	<b>13,6</b>	<b>58</b>
<b>Urinary disorder</b>	2,5	2		-
<b>Kidney malfunction</b>	9,5	2		-
<b>Cause of death not specified</b>	8	7	<b>7,5</b>	<b>3</b>
<b>Other unspecified disease</b>	8,5	20	<b>7,9</b>	<b>19</b>
<b>Total</b>				
(Excluded: Congenital defect or malformation of a puppy and Accident)	<b>9,5</b>	<b>193</b>	<b>10,1</b>	<b>225</b>

Table 4. Cause of death -statistics 1991-2013 collected August 4<sup>th</sup>, 2016 (Finnish Kennel Club breeding database)

<http://jalostus.kennelliitto.fi/frmTerveystilastot.aspx?R=269&Lang=en>

Cause of death	Average life span	Total
<u>Accident</u>	3 years 10 months	33
<u>Age (natural or euthanasia)</u>	13 years 1 months	55
<u>Congenital defect or malformation of a puppy</u>	0 years 1 months	1
<u>Dead without diagnosis of illness</u>	8 years 10 months	4
<u>Endocrine disease</u>	9 years 6 months	1
<u>Euthanasia due to behavioral problems</u>	4 years 7 months	10
<u>Euthanasia, non-diagnosed</u>	10 years 6 months	15
<u>Heart disease</u>	9 years 0 months	24
<u>Immunological disease</u>	4 years 6 months	18
<u>Jecur or digestive disease</u>	5 years 9 months	5
<u>Neurological disorder</u>	4 years 4 months	4
<u>Other unspecified disease</u>	8 years 1 months	24
<u>Respiratory disease</u>	11 years 2 months	8
<u>Skin or ear disease</u>	3 years 10 months	2
<u>Tumor, cancer</u>	10 years 6 months	66
<u>Urinary disorder</u>	10 years 3 months	3
<u>Cause of death not specified</u>	9 years 10 months	41
<u>Altogether</u>	9 years 1 months	314

#### 4. Health and reproduction

Table 5. Main results of the health surveys 2010 and 2015 (Finnish Saluki Magazine 4/2015)

<b>Health, accidents and most common diseases</b>				
<b>Year</b>	<b>2010 all</b>	<b>2010 imports</b>	<b>2015 all</b>	<b>2015 imports</b>
<b>Number of reports</b>	<b>700</b>	<b>81</b>	<b>730</b>	<b>108</b>
Nothing to report	318 (45,4 %)	48 (59,3 %)	346 (47,4 %)	55 (50,9 %)
Accidents	82 (11,7 %)	5 (6,2 %)	127 (17,4 %)	20 (18,5 %)
<b>Diseases</b>				
Allergies, skin infections, inflammations	175 (25,0 %)	13 (16,0 %)	107 (14,7 %)	14 (13,0 %)
Tumors or cancer	109 (15,6 %)	6 (7,4 %)	168 (23,0 %)	16 (14,8 %)
Heart diseases	58 (8,3 %)	4 (4,9 %)	92 (12,6 %)	14 (13,0 %)
Autoimmune diseases	40 (5,7 %)	4 (4,9 %)	51 (7,0 %)	9 (8,3 %)

Between the 2 surveys, during 1 saluki generation, changes have already occurred in the results. According to the health survey results half of the Finnish saluki population has no health or behavioral problems. There's been a significant decline, 10% units, in allergies, skin infections and inflammations. It's debatable whether the increased use of imports and foreign studs has improved the diversity and thus the general health of the population.

The explanation to the increase in tumors is simply a technical one: in 2015 there was a specific question about lipomas, in 2010 they were not asked about.

Salukis were involved in a study with the Veterinary Department of the Helsinki University. The aim of the study was to determine the reference ranges of normal saluki heart. Thyroid test was included in a conclusive veterinary check, which resulted in several findings of hypothyroidism. Therefore the number of autoimmune diseases has increased.

The number of heart diseases has risen; hopefully we will see a change for the better in the next survey. The breeders have understood the importance of heart ultrasound test for dogs used for breeding. The main goal is to prevent young or middle-aged dogs for falling ill or even dying due to heart problems. It is desirable that a Saluki should live a healthy life past 10 years.

Salukis have no particular problems in reproducing. The increased use of artificial insemination has resulted in small litters, which has slightly affected the average litter size.

Recommendations for dogs used for breeding regarding health:

- dogs used for breeding must be over 3 years of age
- veterinary heart ultrasound examination is required for dogs used for breeding, the result must be "healthy" (grade A). The examination is valid for 1 year.
- veterinary eye examination is required for dogs used for breeding, the result must be "healthy" apart from a few exceptions. For dogs under 4 years the examination is valid for a year, for dogs over 4 years the examination is valid for 2 years.

Additional, optional recommendations for dogs used for breeding:

- thyroid test
- DLA-haplotype test to improve the diversity within the population.

Links to lists of heart ultrasound tested and DLA-haplotype tested salukis can be found on the webpage of the Finnish Saluki Club: <http://www.saluki.fi/jalostus/>

Link to the article of Breed specific reference ranges for echocardiography in salukis:  
<http://www.sonopath.com/articles/breed-specific-reference-ranges-for-echocardiography-in-salukis>

Link to the Finnish Kennel Club's breeding strategy:  
<http://www.kennelliitto.fi/en/breeding-and-health/find-out-what-the-breeding-strategy-means-in-your-breed>